

12-06-99

A

Practitioner's Docket No. 3179.01A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
 Assistant Commissioner for Patents
 Washington, D.C. 20231

JC584 U.S. PTO
 09/454173
 12/02/99

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of
 Inventor(s): Linda B. Vanderwold and Donald L. Hallberg

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(f) is filed supplying or changing the name or names of the inventor or inventors."

For (title): STYLE-CHECKING METHOD AND APPARATUS FOR BUSINESS WRITING

CERTIFICATION UNDER 37 C.F.R. 1.10*
 (Express Mail label number is mandatory.)
 (Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date December 2, 1999, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EL454169425US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Joseph E. Gerber

(type or print name of person mailing paper)

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" **must** have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

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12/02/99
 JC490 U.S. PTO

12/02/99
 JC490 U.S. PTO

1. Type of Application

This new application is for a(n)

(check one applicable item below)

- ☒ Original (nonprovisional)
☐ Design
☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

WARNING: Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply, then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION.

- ☐ Divisional.
☐ Continuation.
☐ Continuation-in-part (C-I-P).

2. Benefit of Prior U.S. Application(s) (35 U.S.C. 119(e), 120, or 121)

NOTE: A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. 120, 121 or 365(c). (35 U.S.C. 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

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WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application **must** be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

- A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

22 Pages of specification

7 Pages of claims

8 Sheets of drawing

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 CFR 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. 1.84(c)).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. 1.84(b).

☒ formal

☐ informal

- B. Other Papers Enclosed

7 Pages of declaration and power of attorney

1 Pages of abstract

 Other

4. Additional papers enclosed

- ☐ Amendment to claims
- ☐ Cancel in this applications claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)
- ☐ Preliminary Amendment
- ☒ Information Disclosure Statement (37 C.F.R. 1.98)
- ☒ Form PTO-1449 (PTO/SB/08A and 08B)
- ☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)–(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)–(4).

☒ Enclosed

Executed by

(check all applicable boxes)

☒ inventor(s).

☐ legal representative of inventor(s).
37 CFR 1.42 or 1.43.

☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.

☐ This is the petition required by 37 CFR 1.47 and the statement required by 37 CFR 1.47 is also attached. See item 13 below for fee.

☐ Not Enclosed.

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

☐ Application is made by a person authorized under 37 C.F.R. 1.41(c) on behalf of all the above named inventor(s).

(The declaration or oath, along with the surcharge required by 37 CFR 1.16(e) can be filed subsequently).

☐ Showing that the filing is authorized.
(not required unless called into question. 37 CFR 1.41(d))

(Application Transmittal [4-1]—page 4 of 11)

6. Inventorship Statement

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☒ The same.

or

☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

☐ is submitted.

☐ will be submitted.

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 CFR 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 CFR 1.52(d).

☒ English

☐ Non-English

☐ The attached translation includes a statement that the translation is accurate. 37 C.F.R. 1.52(d).

8. Assignment

☐ An assignment of the invention to _____

☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

☐ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 CFR 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

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9. Certified Copy

Certified copy(ies) of application(s)

Country	Appln. No.	Filed
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

- ☐ is (are) attached.
☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 CFR 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. 1.16)

A. ☒ Regular application

CLAIMS AS FILED			
Number filed	Number Extra	Rate	Basic Fee 37 C.F.R. 1.16(a) \$790.00 760.00
Total			
Claims (37 CFR 1.16(c)) $63 - 20 = 43$	\times	18.00 \$ 22.00	774.00
Independent			
Claims (37 CFR 1.16(b)) $- 3 =$	\times	\$ 82.00	
Multiple dependent claim(s), if any (37 CFR 1.16(d))	$+$	\$270.00	

- ☐ Amendment cancelling extra claims is enclosed.
☐ Amendment deleting multiple-dependencies is enclosed.
☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 CFR 1.16(d).

Filing Fee Calculation \$ 1,534.00

B. ☐ Design application
(\$330.00—37 CFR 1.16(f))

Filing Fee Calculation \$

C. ☐ Plant application
(\$540.00—37 CFR 1.16(g))

Filing fee calculation \$

(Application Transmittal [4-1]—page 6 of 11)

11. Small Entity Statement(s)

- ☒ Statement(s) that this is a filing by a small entity under 37 CFR 1.9 and 1.27 is (are) attached.

WARNING: "Status as a small entity must be specifically established in each application or patent in which the status is available and desired. Status as a small entity in one application or patent does not affect any other application or patent, including applications or patents which are directly or indirectly dependent upon the application or patent in which the status has been established. The refiling of an application under § 1.53 as a continuation, division, or continuation-in-part (including a continued prosecution application under § 1.53(d)), or the filing of a reissue application requires a new determination as to continued entitlement to small entity status for the continuing or reissue application. A nonprovisional application claiming benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) of a prior application, or a reissue application may rely on a statement filed in the prior application or in the patent if the nonprovisional application or the reissue application includes a reference to the statement in the prior application or in the patent or includes a copy of the statement in the prior application or in the patent and status as a small entity is still proper and desired. The payment of the small entity basic statutory filing fee will be treated as such a reference for purposes of this section." 37 C.F.R. § 1.28(a)(2).

(complete the following, if applicable)

- ☐ Status as a small entity was claimed in prior application
 _____ / _____, filed on _____, from which benefit
 is being claimed for this application under:

35 U.S.C. ☐ 119(e),
☐ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of **A**, **B** or **C** above)

\$ 767.00

NOTE: Any excess of the full fee paid will be refunded if small entity status is established and a refund request are filed within 2 months of the date of timely payment of a full fee. The two-month period is not extendable under § 1.136. 37 CFR 1.28(a).

12. Request for International-Type Search (37 C.F.R. 1.104(d))

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

(Application Transmittal [4-1]—page 7 of 11)

13. Fee Payment Being Made at This Time

☒ Not Enclosed

☐ No filing fee is to be paid at this time.

(This and the surcharge required by 37 C.F.R. 1.16(e) can be paid subsequently.)

☒ Enclosed

☒ Filing fee \$ 767.00

☐ Recording assignment
(\$40.00; 37 C.F.R. 1.21(h))
(See attached "COVER SHEET FOR
ASSIGNMENT ACCOMPANYING NEW
APPLICATION".) \$ _____

☐ Petition fee for filing by other than all the
inventors or person on behalf of the inventor
where inventor refused to sign or cannot be
reached
(\$130.00; 37 C.F.R. 1.47 and 1.17(l)) \$ _____

☐ For processing an application with a
specification in
a non-English language
(\$130.00; 37 C.F.R. 1.52(d) and 1.17(k)) \$ _____

☐ Processing and retention fee
(\$130.00; 37 C.F.R. 1.53(d) and 1.21(l)) \$ _____

☐ Fee for international-type search report
(\$40.00; 37 C.F.R. 1.21(e)) \$ _____

NOTE: 37 CFR 1.21(l) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 CFR 1.53(f) and this, as well as the changes to 37 CFR 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of \$ 1.21(l) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed \$ 767.00

14. Method of Payment of Fees

☒ Check in the amount of \$ 767.00

☐ Charge Account No. _____ in the amount of
\$ _____

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 CFR 1.22(b).

(Application Transmittal [4-1]—page 8 of 11)

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☐ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. _____:

- ☐ 37 C.F.R. 1.16(a), (f) or (g) (filing fees)
☐ 37 C.F.R. 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

- ☐ 37 C.F.R. 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)
☐ 37 C.F.R. §§ 1.17(a)(1)–(5) (extension fees pursuant to § 1.136(a)).
☐ 37 C.F.R. 1.17 (application processing fees)

NOTE: “. . . A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission.” 37 C.F.R. § 1.136(a)(3).

- ☐ 37 C.F.R. 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 CFR 1.311(b).

NOTE: 37 CFR 1.28(b) requires “Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . .” From the wording of 37 CFR 1.28(b), (a) notification of change of status must be made even if the fee is paid as “other than a small entity” and (b) no notification is required if the change is to another small entity.

16. Instructions as to Overpayment

NOTE: "... Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

- ☐ Credit Account No. _____
- ☒ Refund

Reg. No. 32,354

Tel. No. (916) 558-6000

Customer No. 20940



SIGNATURE OF PRACTITIONER

Joseph E. Gerber

(type or print name of attorney)

400 Capitol Mall, 11th Floor

P.O. Address

Sacramento, California 95814

(Application Transmittal [4-1]—page 10 of 11)

☐ **Incorporation by reference of added pages**

(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)

- ☐ Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed

Number of pages added _____

- ☐ Plus Added Pages for Papers Referred to in Item 4 Above

Number of pages added _____

- ☐ Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.

Number of pages added _____

- ☐ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

☐ **Statement Where No Further Pages Added**

(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item)

- ☒ This transmittal ends with this page.

Practitioner's Docket No. 3179.01A**PATENT**

☒ Applicant Linda B. Vanderwold ☐ Patentee _____
☐ Application No. _____ ☐ Patent No. _____
☐ Filed on _____ ☐ Issued on _____
 Title: STYLE-CHECKING METHOD AND APPARATUS FOR BUSINESS WRITING

**STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(b))—INDEPENDENT INVENTOR**

As a below named inventor, I hereby state that I qualify as an independent inventor, as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office, with regard to the invention described in

- ☒ the specification filed herewith, with title as listed above.
☐ the application identified above.
☐ the patent identified above.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person had made the invention, or to any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license, any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern or organization is listed below. *

*NOTE: Separate statements are required from each named person, concern or organization having rights to the invention as to their status as small entities. (37 CFR 1.27)

FULL NAME _____

ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME _____

ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME _____

ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

(check the following item, if desired)

NOTE: The following verification statement need not be made in accordance with the rules published on Oct. 10, 1997, 62 Fed. Reg. 52131, effective Dec. 1, 1997.

NOTE: "The presentation to the Office (whether by signing, filing, submitting, or later advocating) of any paper by a party, whether a practitioner or non-practitioner, constitutes a certification under § 10.18(b) of this chapter. Violations of § 10.18(b)(2) of this chapter by a party, whether a practitioner or non-practitioner, may result in the imposition of sanctions under § 10.18(c) of this chapter. Any practitioner violating § 10.18(b) may also be subject to disciplinary action. See §§ 10.18(d) and 10.23(c)(15)." 37 C.F.R. § 1.4(d)(2).

☒ I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Linda B. Vanderwold

Name of inventor

Linda B. Vanderwold

Signature of Inventor

Date 12/1/99

Name of inventor

Signature of Inventor

Date _____

Name of inventor

Signature of Inventor

Date _____

(Small Entity—Independent Inventor [7-1]—page 2 of 2)

Practitioner's Docket No. 3179.01A**PATENT**

☒ Applicant Donald L. Hallberg ☐ Patentee _____
☐ Application No. ☐ Patent No. _____
☐ Filed on ☐ Issued on _____

Title: STYLE-CHECKING METHOD AND APPARATUS FOR BUSINESS WRITING

**STATEMENT CLAIMING SMALL ENTITY STATUS
 (37 CFR 1.9(f) and 1.27(b))—INDEPENDENT INVENTOR**

As a below named inventor, I hereby state that I qualify as an independent inventor, as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office, with regard to the invention described in

- ☒ the specification filed herewith, with title as listed above.
☐ the application identified above.
☐ the patent identified above.

I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person had made the invention, or to any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license, any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern or organization is listed below. *

*NOTE: Separate statements are required from each named person, concern or organization having rights to the invention as to their status as small entities. (37 CFR 1.27)

FULL NAME _____

ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME _____

ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME _____

ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

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(Small Entity—Independent Inventor [7-1]—page 2 of 2)

Patent Application
of
Linda Vanderwold
and
Don Hallberg
for
**STYLE-CHECKING METHOD AND APPARATUS
FOR BUSINESS WRITING**

BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention relates generally to methods and apparatus for improving literacy, and more specifically to methods and apparatus for checking, editing and teaching particular writing styles.

5 2. Description Of The Related Art

Writers commonly use dictionaries, thesauri, grammar guides, and word processor-based spelling and grammar checkers to assure writing is technically correct. And, general style guides offer writers different ways of presenting content. Although these resources are generally sufficient for casual writers, today's business world
10 demands more from its writers than the mere technical precision achievable with conventional aids. Whether in e-mail or an annual report, business writing should be clear and concise. Business writers need to remember that even though a written piece may be grammatically and otherwise correct, it may remain unclear, boring or

uncomfortable to read. The message must not get lost in the words.

Constructions that confuse and frustrate readers most include: disconnected subjects and verbs; weak verbs; misused prepositional phrases; repetitive sentence styles; and, too few transitional words and unifying topical links within paragraphs. Such problems are rarely cured by quickly checking a text, or by running a document through a grammar-checking program. And, style guides merely offer a wide collection of subjective tips and pointers, such as "pick the best approach for the audience," or "break up big ideas for better readability." Using those resources and methods, unfortunately, merely results in subjective "this sounds better"-type editing, feeding endless rewrite cycles.

Ultimately, what business writers should strive for is best described as "reader comfort." However, prior-available systems and methods fail to provide clear paths to achieving that goal.

Accordingly, it appears a need exists for an objective method for writing, style-checking and editing business text documents to maximize reader comfort.

SUMMARY OF THE INVENTION

The method and apparatus of the present invention are adapted to overcome the above-noted shortcomings and to fulfill the stated needs. They are specifically adapted to critiquing and editing business writing, and some types of technical writing, as well.

One embodiment of the invention is a method for style-checking a text document to achieve clarity, conciseness and reader comfort. Therein, a commendatory indicator is displayed if a subject and corresponding verb of a sentence or clause are juxtaposed, while a critical indicator is displayed if the subject and verb are not juxtaposed. Critical indicators are displayed for prepositional phrases and weak verbs; and, commendatory indicators are displayed for strong verbs.

Another embodiment of the invention is a method for quantifying reader discomfort in a text document. It first requires establishment of a scoring baseline. Then, points indicating discomfort are added for: a high ratio of nonjuxtaposed subjects and verbs to juxtaposed subjects and verbs; a high ratio of weak verbs to strong verbs; and, for a high ratio of the number of sentences to the number of transition words in the

document.

Yet another embodiment of the invention is a method for editing a text document. It comprises the steps of inputting the document to a computer system; conducting error-correcting functions to achieve clarity, conciseness and reader comfort; and, displaying the document in a corrected form.

The inventive concept also includes apparatus for carrying out the inventive methods on printed documents as well as electronic documents.

One object of the present invention is to provide structured style-checking, editing and drafting methods for writing business documents.

A further object of the present invention is to provide a method for clear, concise business writing, wherein the method is reduced to a logical set of steps and processes.

Yet another object of this invention is to provide business writing methods and apparatus for achieving reader comfort, wherein the methods and apparatus generate objective and measurable results and data useful in, at once, improving the writer's skill, and increasing the reader comfort of a given document.

Still further objects of the inventive method and apparatus disclosed herein will be apparent from the drawings and following detailed description thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a computer system useable in carrying out the method of the invention.

FIG. 2A is a portion of a flow chart showing the display indicator-generating method portion of the invention.

FIG. 2B is a flow chart continued from FIG. 2A showing a portion of the display indicator-generating method of the invention.

FIG. 2C is a flow chart continued from FIG. 2A showing a portion of the display indicator-generating method of the invention.

FIG. 2D is a flow chart continued from FIG. 2A showing a portion of the display indicator-generating method of the invention.

FIG. 3A is a portion of a flow chart showing the reader discomfort calculating and reporting method of the invention.

FIG. 3B is a flow chart continued from FIG. 3A showing a portion of the reader discomfort calculating and reporting method of the invention.

FIG. 4A is a portion of a flow chart showing the error-correcting method of the invention.

5 FIG. 4B is a flow chart continued from FIG. 4A showing a portion of the error-correcting method of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

10 Fig. 1 shows a block diagram of an apparatus, specifically, a stand-alone computer system 10, for carrying out the writing style-checking method of the invention. Computer system 10 includes an input/output controller 12 associated with a memory element 14 and a programmable processor 16. Input/output controller 12 is able to receive input from keyboard 18, or communications link 20, and is able to read and write data to from data storage device 22. A display terminal 24 receives output from
15 input/output controller 12. Style-checking software module 26 may be a separate application program, or may operate through another application, such as a word processor.

Figs. 2A - 2D illustrate a first embodiment of the invention. Therein, a processing sequence is shown, in a block diagram representation, of a computer-aided
20 method for checking the writing style of sentences and paragraphs in an electronic document for reader comfort. The method of the invention will generally be embodied in and carried out through style-checking computer software module 26. The electronic document will generally be in the form of a business text document file 28 created with a software application program such as a word processor, or other application able to
25 generate the text of a business document.

Delivery, i.e. input, of the text file 28 to the style checker 26 may be from a data storage device 22, or from a communications link 20. Alternatively, text may be input directly from keyboard 18. Other methods of input, such as scanning a hard copy, i.e. a paper-printed copy, of a business text document, are also contemplated, as are other
30 methods known to those having skill in the art.

In generating a display 30, words and word groups in the text are shown on

display terminal 24 along with informational, critical or commendatory indicators. This step may include parsing each sentence into its parts of speech and other components: nouns; group nouns; verbs; adverbs; prepositions; prepositional phrases; grammatical subjects; and, the like. Software modules able to perform such parsing functions are well-known in the art. The informational, critical and commendatory display indicators may include various types and colors of underlining, highlighting and diacritical markings in superscripts and subscripts. Although several types of preferred indicators are set forth herein, these should only be construed to be examples. Any indicators which do not obscure the text may work satisfactorily. The character and meaning of each indicator may be set forth in a separate table, chart, key or set of instructions similar to that set forth farther below.

In a first display routine 32, shown in Fig. 2B, separate unique indicators are displayed with each of several parts of speech, word groups and words in particular positions. No particular order need be followed in generating separate unique display indicators of routine 32.

In one subroutine 34, each subject of a sentence is displayed with an informational indicator, for example, a black underline. If a sentence has multiple subjects, as in a compound sentence, more than one word or word group may be black-underlined.

In a separate subroutine 36, each verb is double-underlined in black. Sentences having multiple verbs will have each double-underlined. This unique display indicator marking verbs as particular parts of speech is informational. Additional indicators, both critical and commendatory, for verbs of different types are set forth, below.

Sentences and clauses are more comfortable to read when their subjects and verbs are juxtaposed, i.e. positioned side by side. Juxtaposing the subject and verb encourages subject-verb agreement. Thus, in a separate subroutine 38, juxtaposed subjects and verbs are displayed with a unique commendatory indicator: pink highlighting.

Weak verbs detract from clarity and reader comfort. They require a great deal of support from other parts of the sentence, thus promoting wordy writing and diminishing readers' abilities to remember the message communicated. Thus, in a separate subroutine 40, weak verbs are given a critical unique display indicator: an orange check mark above the verb. Weak verbs are identified by referring to a weak

verb list, including words such as those set forth in the following Table 1:

Table 1. Weak Verb List

5	am	has
	are	have
	be	may
	been	might
	being	must
10	can	shall
	could	should
	did	was
	do	were
	does	will
15	is	would
	had	

Other verbs such as "seems" and "appears" are considered somewhat weak, and are also best avoided for reader comfort. Thus, in a separate subroutine 42, somewhat weak verbs are encircled in light green as a unique critical indicator. Somewhat weak verbs may be identified by reference to a lookup list.

Verbs not found to be weak or somewhat weak are considered strong verbs. Strong verbs add to reader comfort and warrant a commendatory indicator. Thus, in a separate subroutine 44, strong verbs are encircled in green. An alternative method for identifying strong verbs may be by reference to a strong verb list. This list may comprise, for example, verbs which add particular strength to business writing. Such a sample list is shown in the following Table 2:

Table 2. Strong Business Verb List

	accept	favor	perform
	address	find	plan
	advise	focus	prepare
5	affirm	force	present
	agree	formulate	prevent
	analyze	forward	produce
	appreciate	gain	propose
	approach	garner	provide
10	appropriate	gauge	qualify
	arrange	glean	quantify
	assist	govern	query
	augment	gravitate	question
	authorize	grow	range
15	capture	guide	rank
	collect	happen	recognize
	communicate	harness	recommend
	compile	highlight	reiterate
	compliment	hinder	report
20	concur	hold	require
	conduct	identify	resolve
	contrive	implement	restate
	cooperate	improve	reveal
	coordinate	incorporate	revise
25	cultivate	initiate	serve
	define	instigate	shape
	denote	institute	span
	derive	interact	sponsor
	describe	juggle	streamline
30	deserve	justify	stress
	design	launch	study
	designate	lead	submit
	determine	leverage	summarize
	develop	liken	support
35	drive	manage	take
	educate	mediate	terminate
	emphasize	meet	track
	encourage	meter	trust
	enhance	migrate	value
40	establish	muster	verify
	evaluate	obtain	veto
	examine	offer	voice
	exchange	optimize	wield
	expose	organize	work
45	facilitate	parcel	yield
	factor	participate	

Words and phrases communicating transitions between thoughts from one sentence to the next generally add to reader comfort. However, transition words and phrases detract from reader comfort when placed between a subject and its logically-associated, corresponding verb. Thus, in a separate subroutine 46, transition words interposed between subject and verb are displayed with a unique critical indicator: yellow underlining. Transition words may be identified with a lookup list such as that in the following Table 3:

Table 3. Transition Word List

accordingly
although
consequently
however
nevertheless

In yet a separate subroutine 48, words and phrases found in the transition word list, but not interposed between subject and verb, are given a unique commendatory indicator: blue underlining.

Prepositional phrases detract from reader comfort in a variety of ways. Thus, prepositional phrases will normally be displayed along with a critical indicator. However, certain placements and certain categories of prepositional phrases affect reader comfort differently, and therefore are displayed with different unique indicators. For example, where a job title precedes the preposition in a prepositional phrase, as in "president of the association," an informational indicator may be displayed with the phrase, indicating that the phrase should be treated as an acceptable group noun. Any clear, unique highlighting or diacritical marking in the display will suffice, none being particularly preferred over any other. Such informational indicator may be displayed as the result of a separate subroutine 50. Or, alternatively, this special type of prepositional phrase may be displayed with no indicator at all, as this type does not generally cause the reader discomfort problems normally associated with other prepositional phrases.

In a separate subroutine 52, prepositional phrases which express location are

displayed with a unique informational indicator when they appear in a string of three or more prepositional phrases. Any clear, unique highlighting or diacritical marking in the display will suffice, none being particularly preferred over any other. Strings of three or more prepositional phrases cause a monotonous, undesirable cadence, and are therefore best broken up. Frequently, an easy remedy is to move one of the prepositional phrases from the string to the beginning of the sentence. In making the choice of which to move forward, prepositional phrases expressing location are generally the best candidates. Thus, the display indicator applied by subroutine 52 informs the writer or editor that it is preferable to move the location-expressing prepositional phrase.

One of the most common causes of reader confusion and discomfort is placement of prepositional phrases between subjects and their logically associated verbs. Such interposing prepositional phrases usually result from using weak words to describe the actor or subject of the sentence, thus requiring further explanation or definition before the sentence's verb. Once identified, certain specific remedies can cure these problems. Therefore, in a separate subroutine 54, such interposing prepositional phrases are displayed with a unique critical indicator: yellow highlighting.

Business writers need to be aware of use and placement of all prepositional phrases, because they often cause clarity problems. Thus, except for those preceded by job titles, which through separate subroutine 50 are displayed with a mere informational indicator or no indicator at all, all prepositional phrases should be displayed with critical indicators. Yellow highlighting applied in subroutine 54 identifies a special, most comfort-decreasing type of prepositional phrase misuse. But, all other uses of prepositional phrases should be monitored, as well. Thus, in yet a separate subroutine 56, prepositional phrases not preceded by job titles are displayed with a unique critical indicator. Any clear, unique highlighting or diacritical marking in the display will suffice, none being particularly preferred over any other. However, as discussed farther below, it may simply be expedient to use the same gray highlighting employed in a separate routine 70. But, in any case, any marking or highlighting displayed as a result of subroutine 56 should be sufficiently distinct from that applied in subroutine 54, so both may be displayed at once.

As noted above, sentence constructions including three or more prepositional

phrases in a row sound repetitious, and set up an uncomfortable, monotonous cadence. Thus, in addition to displaying prepositional phrases other than those preceded by job titles with critical indicators, a separate display subroutine 58 marks groups of three or more consecutive prepositional phrases. For maximum reader comfort, prepositional
5 phrases preceded by job titles are included in the count because, although otherwise benign, they contribute to the undesirable cadence set up by lengthy prepositional phrase strings. Any clear, unique highlighting or diacritical marking in the display will suffice, none being particularly preferred over any other. And, such display indicator may be
10 displayed over all of the prepositional phrases in the three-or-greater group, or each may be displayed with a separate diacritical mark. Further, each prepositional phrase in the group may be displayed with the critical indicator. But, in any case, any marking or highlighting displayed as a result of subroutine 58 should be sufficiently distinct from that applied in subroutines 52 and 56, so all may be displayed at once.

15 Interposing prepositional phrases between associated subjects and verbs negatively affects reader comfort in special ways; and, interposing transition words between subjects and verbs negates the normally beneficial use of transitions. Thus, these constructions are displayed with different critical indicators generated in subroutines 54 and 46, respectively. However, other words and word groups between associated subjects and
20 verbs also negatively affect sentence clarity. Thus, in a separate subroutine 60, all words other than transitions and prepositional phrases interposed between associated subjects and verbs are displayed with a unique critical indicator. Any clear, unique highlighting or diacritical marking in the display will suffice, none being particularly preferred over any other. But, for convenience and without causing undue confusion for the writer, the
25 same yellow underlining used in displaying interposing transition words may also be used here.

Despite interruptions between subject and verb being generally detrimental to reader comfort, one type of interposing word construction is generally acceptable, and perhaps even desirable. These are time-indicating adverbs such as always, never and
30 rarely. Thus, an alternative form of subroutine 60 may refrain from displaying a unique indicator on time-indicating adverbs when these are placed between the subject and verb.

And, yet a separate alternative subroutine may cause time-indicating adverbs to be displayed with a commendatory indicator.

Sentence constructions are of four different types: simple; compound; complex; and, compound-complex. Reader comfort is enhanced when a business text document includes a mix of these sentence-types. Separate subroutines cause a unique informational indicator to be displayed in connection with each type. For example, in one subroutine 62, a capital "S" in parentheses is displayed following each simple sentence, e.g. "(S)." In a second subroutine 64, "(Cd)" is displayed following compound sentences. In a third 66, "(Cx)" is displayed following complex sentences. And, in a fourth subroutine 68, "(Cd-Cx)" is displayed following each compound sentence having a complex subpart.

In a first single common indicator display routine 70 depicted in Fig. 2C, a group of writing blunders which diminish clarity in business documents are all displayed with a single, identical, unique critical indicator. That critical indicator is gray highlighting; it is applied in each of the following-described subroutines, none of which particularly needs to be carried out before the other. The gray highlighting applied in subroutines 72, 74, 76, 78 and 79 to follow is a critical indicator generally communicating to the writer that the text includes elements likely to be too wordy and therefore boring for the reader. The same indicator is applied to all of these undesirable constructs, without further distinguishing them from one another, as all have similar effects on business writing. However, if the method of the invention includes a chart, key or set of instructions such as that set forth in the table farther below, the writer will be instantly apprised of the problem communicated by gray highlighting.

In one subroutine 72, the word "There" is highlighted in gray if it appears at the beginning of a sentence. This warns that starting a sentence with "There" traps the writer into using a weak verb, thus causing problems throughout the sentence.

Starting a sentence with "It" causes similar problems. Thus, in a similar but separate subroutine 74, the word "It" is highlighted in gray if it appears first.

The word "responsible" anywhere in a sentence promotes the use of prepositional phrases, and words derived from verbs by adding the suffix "ing." Both are best kept to a minimum in striving for reader comfort. Thus, in a separate subroutine 76, the

word "responsible" appearing anywhere is displayed in gray highlighting.

Verb-derived words ending in "ing" are boring. These derived noun forms of verbs are commonly referred to as gerunds. In subroutine 78, gerunds are displayed in gray highlighting. Subroutine 78 may include reference to a non-gerund "ing"-ending word lookup list, to assure that certain "ing"-ending words are not improperly displayed with the critical gray-highlighting indicator. Such a list is shown in Table 4:

Table 4. Non-gerund, "ing"-ending Word List

bring	ring
ding	sing
fling	thing
king	wing

As alluded to above in connection with prepositional phrase subroutine 56, it may also be expedient to use gray highlighting as the critical display indicator for all prepositional phrases, other than those preceded by job titles. This is not inconsistent with the general message conveyed to the writer by gray highlighting, i.e. that the highlighted constructs cause wordiness and risk boring the reader. Thus, using gray highlighting in displaying all but job title-type prepositional phrases is an optional alternative subroutine 79 in display routine 70.

In a second single common indicator display routine 80 depicted in Fig. 2D, the grammatical subjects of certain sentences in a paragraph are all displayed with a single, identical, unique informational indicator, permitting the writer to determine whether the paragraph has sufficient "unity." That informational indicator is a diacritical mark, preferably a purple "X." It is applied in each of the two following-described subroutines, neither of which particularly needs to be carried out before the other.

Paragraph unity refers to the way specific grammatical subjects relate to the paragraph topic in general. Greater paragraph unity exists when sentences following the paragraph's first include the same words or synonyms in subject position as the first. For example, when a particular actor appears as the grammatical subject in the first sentence of a paragraph, the same words describing that actor, or pronouns or synonyms therefor, should be in grammatical subject position in the majority of sentences

throughout the paragraph. Paragraphs short on unity are perceived by the reader as constantly changing focus, and lacking coherence. A lack of paragraph unity risks making the reader feel jerked around, and confused.

Subroutines 82 and 84 permit the writer to assess paragraph unity. In subroutine 5 82, the informational purple X indicator is displayed along with the grammatical subject. In subroutine 84, a like informational indicator is displayed with the grammatical subject of any sentence having the same words in grammatical subject position as those in grammatical subject position in the paragraph's first sentence. A pronoun or other 10 synonym for the words of the grammatical subject of the first sentence will also suffice, and will be similarly displayed with the informational purple X indicator. The more purple X's in a paragraph, the greater its unity and, consequently, the more comfortable it is to read.

The results of display indicator generation routine 30 and all of its subroutines 32 - 84 will be more useful to the writer if a key, chart or instructional list such as that set 15 forth in Table 5 is provided in display or printed form.

Table 5. Key To Display Indicators

5	<u>Indicator:</u> SINGLE BLACK UNDERLINE	<u>Identifies:</u> Subject of a sentence or clause.	<u>Type:</u> Informational
	DOUBLE BLACK UNDERLINE	Verb in a sentence or clause.	Informational
10	PINK HIGHLIGHT	Subject and verb properly juxtaposed.	Commendatory
	ORANGE CHECK MARK	Weak verb.	Critical
15	DARK GREEN CIRCLE	Strong verb.	Commendatory
	LIGHT GREEN CIRCLE	Somewhat weak verb.	Critical
	YELLOW HIGHLIGHT	Prepositional phrase interposed between subject and verb.	Critical
20	YELLOW UNDERLINE	Transition words interposed between subject and verb.	Critical
		(May also be used for other words interposed between subject and verb.)	Critical
25	GRAY HIGHLIGHT	"There" at beginning of sentence.	Critical
		"It" at beginning of sentence.	Critical
30		"Responsible" anywhere in sentence.	Critical
		Gerunds, i.e. derived noun forms of verbs, ending in "ing."	Critical
35		(May also be used on prepositional phrases other than those preceded by job titles.)	Critical
	BLUE UNDERLINE	Transitional words (unless interposed between subject and verb.)	Commendatory
40	PURPLE X	Grammatical subject in a paragraph's first sentence.	Informational
		Grammatical subject of any sentence of a paragraph after the first, wherein the grammatical subject is the same as, or a synonym for, the grammatical subject of the first sentence.	Informational
45	OTHER INDICATORS	Three or more prepositional phrases in a row.	Critical
	OPTIONAL INDICATORS	Prepositional phrases preceded by job titles.	Informational
50		Prepositional phrases expressing location.	Informational

Table 5. (Cont.)

	<u>Indicator:</u>	<u>Identifies:</u>	<u>Type:</u>
5	(S)	Simple sentence.	Informational
	(Cd)	Compound sentence.	Informational
	(Cx)	Complex sentence.	Informational
10	(Cd-Cx)	Compound-complex sentence.	Informational

In a routine separate from that which generates display indicators 30, a routine may be run on computer system 10 wherein reader discomfort in a business text document 28 is calculated and reported 86. That is, through routine 86, reader discomfort may be quantified. See Figs. 3A and 3B illustrating this second embodiment of the invention. Routine 86 may be run separately from, in any order with respect to, or even without, display indicator generation routine 30. However, as in routine 30, routine 86 may include parsing or otherwise analyzing each sentence of the document to identify all of its parts of speech and other components.

As shown in Fig. 3B, a first step 88 in reader discomfort calculating and reporting routine 86 comprises tallying discomfort points generated from several separate subroutines. No particular order need be followed in carrying out the calculating subroutines. And, any convenient conventional method may be employed for counting and tallying points upon completion of each subroutine. Those skilled in the art will envision many different point-counting and tallying systems, all of which are considered to be within the scope of the invention. And, the scoring methods set forth herein are by way of example only, and without limitation. Indeed, the method may not even necessarily include points, per se.

In the following subroutines 90 to 108, discomfort points are added for instances of unacceptable constructions, and for unacceptable ratios of instances of unacceptable constructions to instances of acceptable constructions. Points may be added to an initial baseline score, for example, "zero." Maximums, minimums, ratios and permissible ranges applied may be predetermined, or set by a writer or editor using the inventive method.

In a first subroutine 90, a count is taken of instances wherein the topic of a sentence is not the same as its grammatical subject. The greater number of instances of such disagreement, the greater the reader discomfort and, therefore, the greater number of discomfort points.

In a separate subroutine 92, the number of words in each sentence of a business document is counted. Discomfort points may be generated by the average sentence length exceeding a predetermined maximum, or by an individual sentence exceeding the maximum. The length maximum may be different for different types of documents, e.g.

for more or less technical writing. And, the length maximum may be adjustable by the writer or editor.

In a separate subroutine 94, the number of instances of nonjuxtaposed subjects and verbs is compared with the number of instances of properly juxtaposed subjects and verbs. A high ratio of the former to the latter yields a greater number of discomfort points.

In a separate subroutine 96, the number of weak verbs is compared with the number of somewhat weak verbs and strong verbs used. Somewhat weak verbs are counted as strong verbs in this subroutine. A high ratio of weak to strong verbs yields a greater number of discomfort points. Subroutine 96 may include reference to lookup lists such as those set forth in Tables 1 and 2.

In a separate subroutine 98, the number of transitional words in a business document is counted and compared with the number of sentences in the document. A high ratio of sentences to transition words makes reader discomfort likely, and therefore yields a greater number of discomfort points. Subroutine 98 may include reference to a lookup list such as that set forth in Table 3.

Reader discomfort caused by a high sentence to transition word ratio may be relative to the technical content of the document. That is, readers of more technical documents may tolerate higher sentence to transition ratios. Therefore, in a separate subroutine 100, fewer discomfort points are generated by documents having fewer sentence to sentence transitions. This may be adjustable by the writer or editor.

As noted in connection with subroutine 58, sentences having three or more prepositional phrases in a row reduce reading comfort. Thus, in subroutine 101, discomfort points are added when such prepositional phrase strings appear in the document.

In a separate subroutine 102, individual paragraphs are analyzed for unity. Thus, the grammatical subject of the first sentence is noted, and then the other sentences in the paragraph are analyzed to determine whether their grammatical subjects are the same as, or synonymous with, the grammatical subject of the first. A high ratio of sentences to repeated appearances of the first sentence's grammatical subject makes reader discomfort more likely, and therefore yields a greater number of discomfort points.

Reader discomfort caused by a high sentence to grammatical subject-repeat ratio may be relative to the technical content of the document. That is, readers of more technical documents may tolerate higher sentence to grammatical subject-repeat ratios. Therefore, in a separate subroutine 104, fewer discomfort points are generated by documents having higher sentence to grammatical subject-repeat ratios. This may be adjustable by the writer or editor.

In a separate subroutine 106, the ratio of long sentences to short sentences is calculated. A high ratio of the former to the latter yields a greater number of discomfort points. Ideal limits may be different for different types of documents, e.g. for more or less technical writing. And, limits may be adjustable by the writer or editor. This subroutine may be carried out with, or use some of the same calculations as, subroutine 92.

In a separate subroutine 108, the ratio of simple sentences to compound sentences to complex sentences to compound-complex sentences is calculated. Ideal ratio ranges are highly dependent upon many factors, including the length of the document, the subject matter being communicated and the intended audience. Ideal ranges are preferably adjustable by the writer or editor.

Once subroutines 90 through 108 have been completed, and the discomfort points in the document have been tallied, the relative discomfort a reader will feel in reading a document can effectively be quantified. Routine 110 displays the result of the tally. Display may be, for example, on display terminal 24. Alternatively, a hard copy of the display may be generated, if desired.

In one alternative display mode, a single score is reported. In another alternative display mode, a separate score is reported for the result of each subroutine. And, in yet an alternative manner of running calculating and reporting routine 86, commendatory points may be additionally or alternatively tallied for desirable, comfort-enhancing constructions such as those set forth in connection with indicator display generation routine 30.

Routine 86 and all of its subroutines may be portions of software module 26, or they may constructed as separate software modules.

In a routine separate from that which generates display indicators 30, and separate

from that which calculates and reports reader discomfort 86, a routine 112 may be run wherein error-correcting, i.e. editing, functions are carried out. See the flow chart of Figs. 4A and 4B illustrating this third embodiment of the invention. Routine 112 proceeds from text document input 28. Routine 112 may be run separately from, in any order with respect to, or even without, routines 30 and 86. However, routine 112 is adapted to run in conjunction with those routines, on computer system 10.

Routine 112 includes several discrete subroutines adapted to remedy particular common problems in business writing. No specific order need be followed in carrying out these editing subroutines. And, there are many possible alternative modes for carrying them out. For example, editing may be interactive, including one or more rounds of display and input-accepting functions requiring a writer's or editor's input or assent. Or, the editing may be more of a batch process, wherein the entire group of subroutines is run on the document before delivering the result. Such result may be a fully-edited document, or a document with results of the editing subroutines interlineated throughout the original text. For example, the inventive method may employ standard word processor-like editing methods, such as producing a redline-strikeout version of the document, i.e. wherein suggested or completed additions appear in highlighted text, and suggested or completed deletions appear stricken over with dashes. Ideally, any editing mode herein would also include use of the display indicators generated in routine 30. And, the calculating and reporting functions of routine 86 may be employed in editing, as well.

In yet another alternative mode, the editing subroutines may be applied word by word, i.e. "on the fly," during drafting. Thus, while the writer is composing, errors are being fixed, suggestions are being made, and choices, answers and other input are being requested. Other optional ways of employing the editing subroutines herein will be understood by those having skill in the art.

Comparing the steps in the following subroutines with one another should make it clear that some of the subroutines may safely be relatively automatic, while others will require some interactively-applied judgement from the writer or editor to render the best written product. However, as capabilities of language processing software improve to the point, for example, where the software can make reliable editing choices based on

context and meaning drawn from adjacent words, sentences and paragraphs, then less input from the writer or editor will be necessary.

As shown in Fig. 4B, one subroutine 114 comprises replacing the word "responsible," wherever found, with the verb form of the "ing" word which nearly inevitably follows. This subroutine may include reference to a lookup list such as that set forth in Table 4, and/or to a list of acceptable constructions including the word "responsible." Running subroutine 114 removes boring "ing" words and results in the use of stronger verbs, thus making the content of the document more memorable.

In a separate subroutine 116, whenever the word "It" appears at the beginning of a sentence, it is replaced with a more descriptive noun for the person or thing for which "It" is acting as a pronoun. Making this replacement guides the writer toward using stronger verbs, and results in making the writing more interesting.

In a separate subroutine 118, when the word "There" starts a sentence, a three-step procedure is carried out to remove that faulty construction's deleterious effects on reader comfort. First, the word "There" and its inevitably-following weak verb are deleted. Next, the topic of the sentence is determined. And finally, the subject and verb of the sentence or clause are adjusted or re-chosen in accordance with the sentence topic. An interactive mode of editing is expected to yield the best written product from this subroutine. For example, the writer may be presented with several alternately-worded versions of the restructured sentence, and then given the opportunity to choose one.

In a separate subroutine 120, a multi-step procedure is carried out when three or more prepositional phrases appear in a row. The problems caused by strings of prepositional phrases are discussed above in connection with subroutines 58 and 101. The simplest remedy for those problems is to move one of the prepositional phrases to the beginning of the sentence. This breaks up the lengthy chain of phrases, and permits one to serve as an introductory phrase. However, different types of prepositional phrases have different effects on reader comfort. For example, in routine 120, if one of the prepositional phrases expresses location, that is the one which will be moved to the beginning of the sentence. That serves reader comfort best. Alternatively, if location is not expressed by any of the prepositional phrases in the string, the writer may have the option of moving any one of the string forward. That option is likely best presented

through an interactive mode of editing.

If, after moving one prepositional phrase to the beginning of the sentence, three or more in a row nevertheless remain, a separate subroutine 122 attempts to collapse the object of the preposition in each phrase to an adjective, and to place that adjective in front of the subject. If that can be successfully done, the number of prepositional phrases is reduced, and reader comfort is enhanced. Interactive editing may be employed to give the writer or editor choices among the phrases able to be collapsed.

In yet a separate subroutine 124, in sentences having both weak verbs and "ing" words derived from verbs, the weak verbs are replaced with the verb form of the "ing" word, and the sentence is restructured to read properly. Subroutine 124 may include reference to weak verb and "ing" word lookup lists such as those set forth in Tables 1 and 4. An interactive mode of editing is preferred in subroutine 124, because the final restructuring of the sentence may require some judgement to yield the best result.

When a prepositional phrase splits an associated subject and verb, subroutine 126 provides a remedy if the noun in the prepositional phrase is capable of action. In that instance, subroutine 126 makes the noun the subject of the sentence, and then a substitute verb is derived from what the subject does. An interactive mode of editing is preferred in subroutine 126, because judgement exercised in deriving the verb will likely yield the best written product.

In a separate subroutine 128, each transitional word interposed between a subject and its associated verb is moved to the beginning of the sentence. This enhances paragraph unity, as discussed in connection with subroutines 82 and 84. Subroutine 128 may include reference to a transition word lookup list such as that set forth in Table 3.

When a sentence has a weak verb, subroutine 130 can provide a remedy if the sentence also has an actor capable of action. In that instance, subroutine 130 replaces the subject of the sentence with the action-capable actor, and replaces the weak verb with a strong verb. Subroutine 128 may include reference to weak verb and strong verb lookup lists such as those set forth in Tables 1 and 2. An interactive mode of editing is expected to yield the best written product from subroutine 128, because making the proper verb choice involves some judgement.

Once editing is complete, an edited form of the text document is displayed 132.

The display mode is dependent upon the editing mode employed. Display may be word by word during drafting if an "on the fly" editing mode is employed. Or, if editing a completed document, display may be error by error, subroutine by subroutine, sentence by sentence, paragraph by paragraph or in any other manner convenient to a writer or editor. And, the display may be in the form of a hard copy, as well.

Routine 112 and all of its subroutines may be portions of software module 26, or they may constructed as separate software modules.

The foregoing detailed disclosure of the inventive methods and computer system 10 are considered only illustrative of the preferred embodiments of, and not limitations upon the scope of, the invention. Those skilled in the art will envision many other possible variations of the structure disclosed herein that nevertheless fall within the scope of the following claims. For example, the word lists set forth herein should not be considered limiting. Many words and phrases may be added to each of the lists, or may be removed, as well, without departing from the spirit of the invention. And, additional lists may also be employed.

Further, although the method is expected to be best carried out by processing an electronic document, i.e. a document stored or delivered via an electronic medium, the method may also be applied to a document printed or otherwise displayed on a planar, non-electronic display medium, such as paper. In that case, the highlighting and diacritical markings of the invention may be applied directly to the planar medium on which the document is displayed.

And, alternative uses for this inventive method and apparatus may later be realized. Accordingly, the scope of the invention should be determined with reference to the appended claims, and not by the examples which have herein been given.

CLAIMS

We claim:

- 5 1. A method for style-checking a text document to achieve clarity, conciseness and reader comfort, comprising the steps of:
 - a. displaying a commendatory indicator if a subject and corresponding verb of a sentence or clause in a text document are juxtaposed;
 - b. displaying a critical indicator if said subject and verb are not juxtaposed;
 - 10 c. displaying a critical indicator if said document includes a prepositional phrase;
 - d. displaying a commendatory indicator if said document includes a strong verb; and,
 - e. displaying a critical indicator if said document includes a weak verb.
- 15 2. The method of Claim 1, further including the step of inputting said document to a computer system before displaying said indicators.
- 20 3. The method of Claim 1, wherein the steps of displaying said indicators comprises displaying said indicators on a computer display terminal.
4. The method of Claim 1, wherein the document is an electronic document.
- 25 5. The method of Claim 1, further comprising the step of displaying said document on a computer display terminal with said indicators.
6. The method of Claim 1, further comprising the step of displaying said document on a planar, non-electronic display medium with said indicators.
- 30 7. The method of Claim 1, further comprising the step of parsing sentences of said document before displaying said indicators.

8. The method of Claim 1, wherein the step of displaying a commendatory indicator if said subject and verb are juxtaposed comprises highlighting said subject and verb in a unique color.

5 9. The method of Claim 1, wherein the step of displaying a critical indicator if said subject and verb are not juxtaposed comprises highlighting a word interposed between said subject and verb in a unique color.

10 10. The method of Claim 1, wherein the step of displaying a critical indicator if said document includes a prepositional phrase comprises highlighting said prepositional phrase with a color indicating an undesirable construction.

15 11. The method of Claim 1, wherein the step of displaying a critical indicator if said document includes a prepositional phrase is carried out for all prepositional phrases except those which express location.

20 12. The method of Claim 1, wherein the step of displaying a commendatory indicator if said document includes a strong verb comprises displaying a diacritical mark with said strong verb.

25 13. The method of Claim 1, wherein the step of displaying a commendatory indicator if said document includes a strong verb includes referring to a verb lookup list.

30 14. The method of Claim 1, wherein the step of displaying a critical indicator if said document includes a weak verb comprises displaying a diacritical mark with said weak verb.

 15. The method of Claim 1, wherein the step of displaying a critical indicator if said document includes a weak verb includes referring to a verb lookup list.

16. The method of Claim 1, further comprising the step of displaying a subject of a sentence or clause in said document with an informational indicator.

5 17. The method of Claim 16, wherein the step of displaying a subject with an informational indicator comprises displaying said subject with an underline.

18. The method of Claim 1, further comprising the step of displaying a verb in said document with an informational indicator.

10 19. The method of Claim 18, wherein the step of displaying a verb with an informational indicator comprises displaying said verb with a double underline.

15 20. The method of Claim 1, further comprising the step of displaying a commendatory indicator if said document includes a transition word.

21. The method of Claim 20, wherein the step of displaying a commendatory indicator if said document includes a transition word includes referring to a transition word lookup list.

20 22. The method of Claim 1, further comprising the step of displaying a critical indicator if a sentence includes a string of three or more prepositional phrases in a row.

25 23. The method of Claim 22, further comprising the step of displaying an informational indicator if a prepositional phrase in said string expresses location.

24. The method of Claim 1, further comprising the step of displaying an informational indicator if a sentence in said document is a simple sentence.

30 25. The method of Claim 1, further comprising the step of displaying an informational indicator if a sentence in said document is a compound sentence.

26. The method of Claim 1, further comprising the step of displaying an informational indicator if a sentence in said document is a complex sentence.

5 27. The method of Claim 1, further comprising the step of displaying an informational indicator if a sentence in said document is a compound-complex sentence.

28. The method of Claim 1, further comprising the step of displaying a critical indicator if said document includes a gerund.

10 29. The method of Claim 28, wherein the step of displaying a critical indicator if said document includes a gerund includes referring to a non-gerund "ing"-ending word lookup list.

15 30. The method of Claim 28, wherein the step of displaying a critical indicator if said document includes a gerund comprises highlighting said gerund with a color indicating an undesirable construction.

31. The method of Claim 1, further comprising the step of displaying a critical indicator if said document includes a sentence starting with the word "There."

20 32. The method of Claim 31, wherein the step of displaying a critical indicator if said document includes a sentence starting with the word "There," comprises highlighting the word "There" with a color indicating an undesirable construction.

25 33. The method of Claim 1, further comprising the step of displaying a critical indicator if said document includes a sentence starting with the word "It."

30 34. The method of Claim 33, wherein the step of displaying a critical indicator if said document includes a sentence starting with the word "It," comprises highlighting the word "It" with a color indicating an undesirable construction.

35. The method of Claim 1, further comprising the step of displaying a critical indicator if said document includes the word "responsible."

36. The method of Claim 35, wherein the step of displaying a critical indicator if said document includes the word "responsible," comprises highlighting the word "responsible" with a color indicating an undesirable construction.

37. The method of Claim 1, further comprising the steps of:

- i. displaying an informational indicator with the grammatical subject of the first sentence of each paragraph of said document; and,
- ii. displaying said same informational indicator with each grammatical subject of each additional sentence in said paragraph wherein said grammatical subject is the same as, or synonymous with, said grammatical subject of said first sentence.

38. Apparatus capable of carrying out the method of Claim 1.

39. A method for quantifying reader discomfort in a text document, comprising the steps of:

- a. establishing a scoring baseline;
- b. adding a discomfort point to said baseline for a high ratio of nonjuxtaposed subjects and verbs to juxtaposed subjects and verbs in a document;
- c. adding a discomfort point to said baseline for a high ratio of weak verbs to strong verbs in said document; and,
- d. adding a discomfort point to said baseline for a high ratio of the number of sentences in said document to the number of transition words in said document.

40. The method of Claim 39, further including the step of reporting said discomfort points to a writer or editor.

41. The method of Claim 41, wherein said reporting step comprises displaying said discomfort points on a computer display terminal.

5 42. The method of Claim 39, further including the step of adding a discomfort point to said baseline for the topic of a sentence in said document not being the same as said sentence's grammatical subject.

10 43. The method of Claim 39, further including the step of adding a discomfort point to said baseline for each sentence in said document over a predetermined length.

15 44. The method of Claim 39, further including the step of adding a discomfort point to said baseline for a high ratio of the number of sentences in a paragraph of said document to repeated identical and synonymic uses of a grammatical subject of a first sentence of said paragraph.

20 45. The method of Claim 39, further including the step of adding a discomfort point to said baseline for a high ratio of the number of long sentences in said document to the number of short sentences in said document.

25 46. The method of Claim 39, further including the step of adding a discomfort point to said baseline for an unacceptable ratio of simple sentences to compound sentences to complex sentences.

25 47. The method of Claim 39, further including the step of subtracting a discomfort point if said document is a technical document.

30 48. Apparatus capable of carrying out the method of Claim 39.

49. A method for editing a text document, comprising the steps of:
- a. inputting a text document to a computer system;
 - b. conducting error-correcting functions to achieve clarity, conciseness and reader comfort; and,
 - c. displaying said text document in a corrected form.

50. The method of Claim 49, wherein said error-correcting functions comprise replacing the word "responsible" with the verb form of a gerund which follows.

51. The method of Claim 49, wherein, when the word "It" starts a sentence, said error-correcting functions comprise replacing the word "It" with words describing to whom or to what "It" refers.

52. The method of Claim 49, wherein, when the word "There" starts a sentence, said error-correcting functions comprise:

- i. deleting the word "There" and a following weak verb;
- ii. determining the topic of said sentence;
- iii. adjusting the subject and verb of said sentence in accordance with said sentence's topic.

53. The method of Claim 49, wherein, when said sentence includes three or more prepositional phrases in a row, said error-correcting functions comprise moving a prepositional phrase to the beginning of a sentence.

54. The method of Claim 53, wherein, when one prepositional phrase of said three prepositional phrases in a row expresses location, further including the step of moving said location-expressing prepositional phrase to said beginning of said sentence.

55. The method of Claim 49, wherein, when said sentence includes three or more prepositional phrases in a row, said error-correcting functions comprise attempting to collapse the object of a preposition in a prepositional phrase to an adjective, and placing

said adjective in front of a sentence's subject.

56. The method of Claim 49, wherein, when a sentence includes both a weak verb and a gerund, said error-correcting functions comprise replacing said weak verb with the verb form of said gerund.

57. The method of Claim 56, further including the step of referring to a verb lookup list.

58. The method of Claim 49, wherein, when a noun in a prepositional phrase interposed between a sentence's subject and verb is capable of action, said error-correcting functions comprise making said noun the subject of said sentence, and deriving a substitute verb from what said subject does.

59. The method of Claim 49, wherein, when a transition word is between a sentence's subject and verb, said error-correcting functions comprise moving said transition word to the beginning of said sentence.

60. The method of Claim 59, further including the step of referring to a transition word lookup list.

61. The method of Claim 49, wherein, when a sentence with a weak verb has an actor capable of action, said error-correcting functions comprise:

- i. replacing said sentence's subject with said action-capable actor; and,
- ii. replacing said weak verb with a strong verb.

62. further including the step of referring to a verb lookup list.

63. Apparatus capable of carrying out the method of Claim 49.

STYLE-CHECKING METHOD AND APPARATUS FOR BUSINESS WRITING

5

ABSTRACT OF THE DISCLOSURE

The method is software-based, and carried out on a computer system and cooperating apparatus. It checks written text for problems impairing clarity, conciseness and reader comfort in business documents. One embodiment includes routines for
10 checking writing style in sentences and paragraphs, and for generating informational, critical and commendatory display indicators relating to reader comfort. The routines check subject and verb juxtaposition; verb strength; prepositional phrase use; transition words; unity-creating constructions; gerund use; and, sentence variety. The indicators are displayed in the form of highlighted text and diacritical marks. Another embodiment
15 is a method for quantifying reader discomfort. It includes routines for quantifying, reporting and displaying points indicating comfort-impairing problems of the type located by running the routines of the first embodiment. Yet another embodiment includes a method for editing text documents for reader comfort, by locating and fixing problem words and constructions.

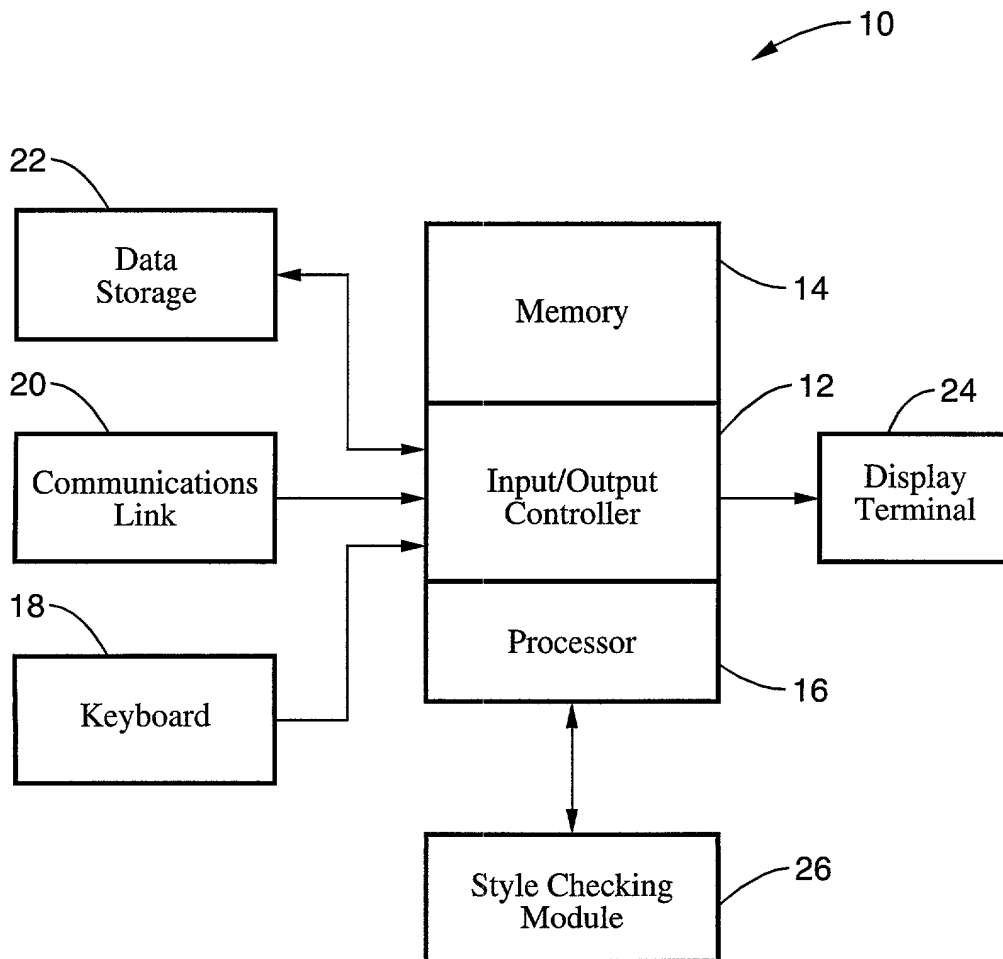


FIG. - 1

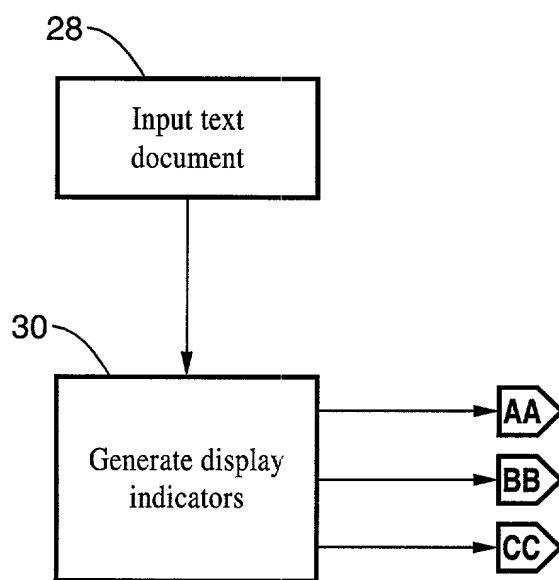


FIG. 2A

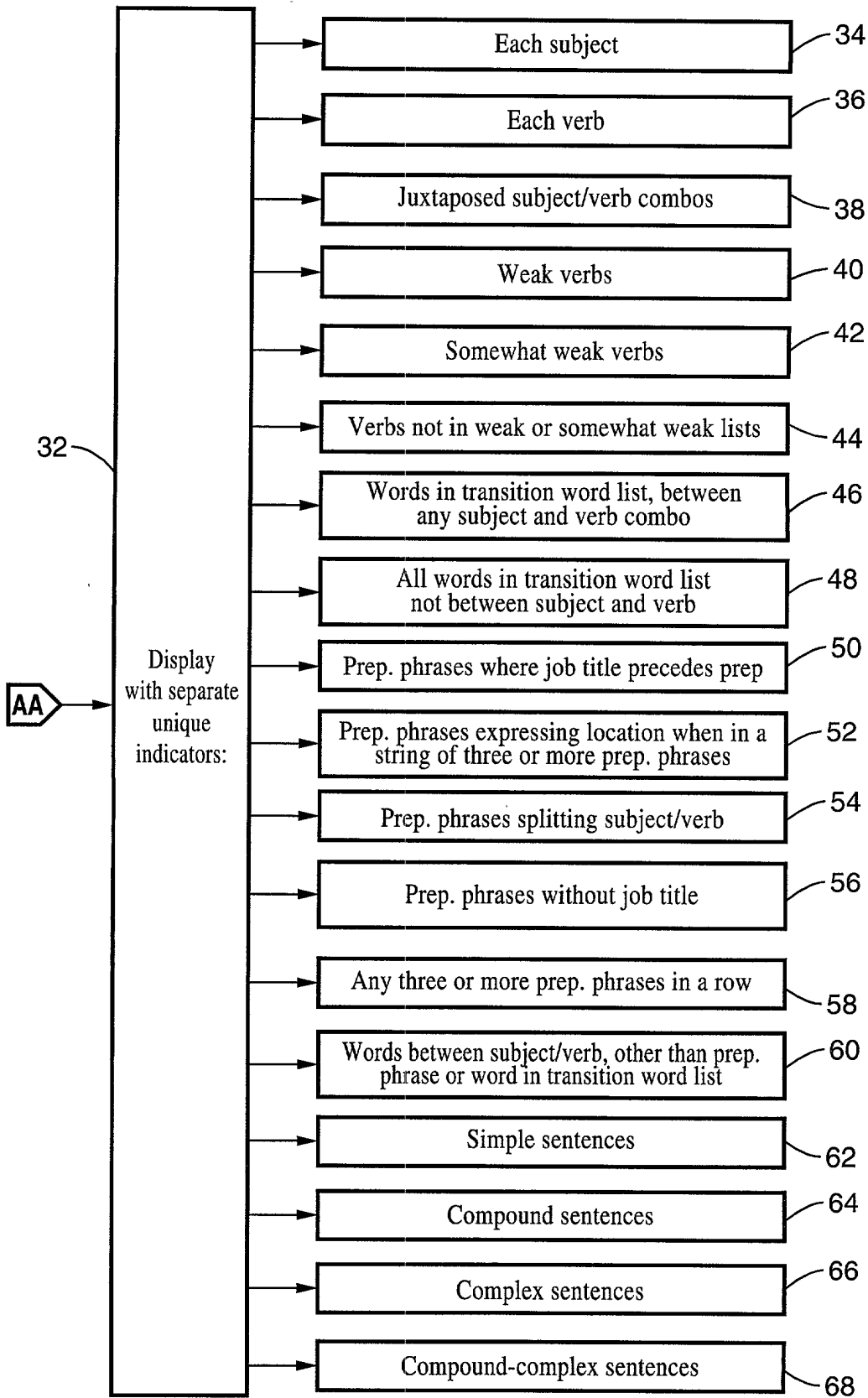


FIG. 2B

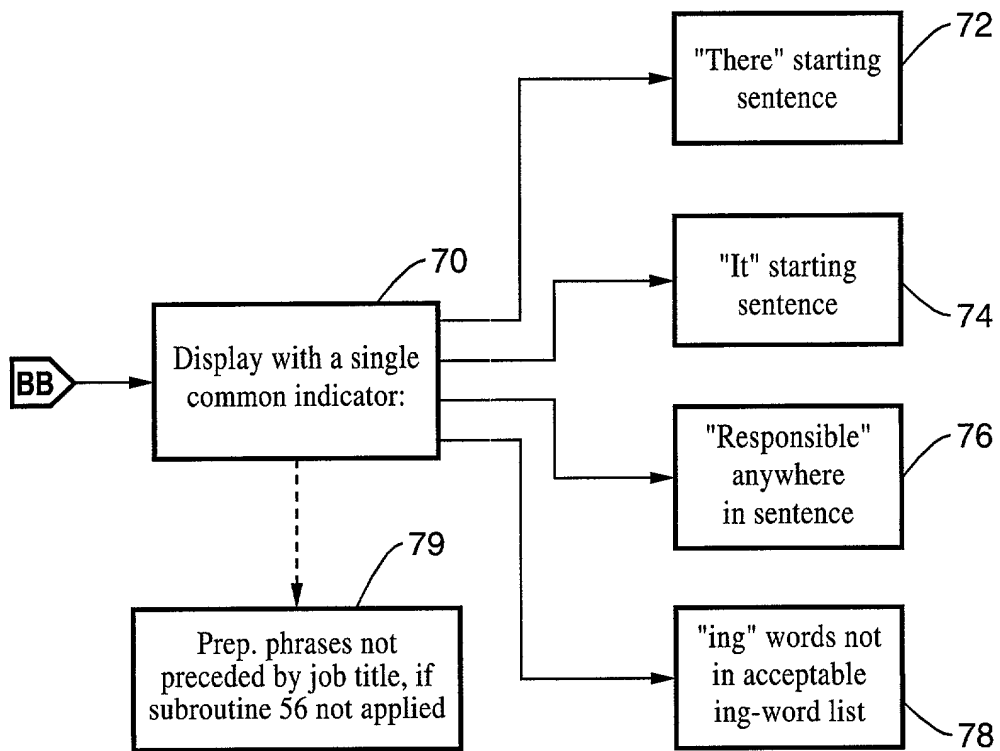


FIG. 2C

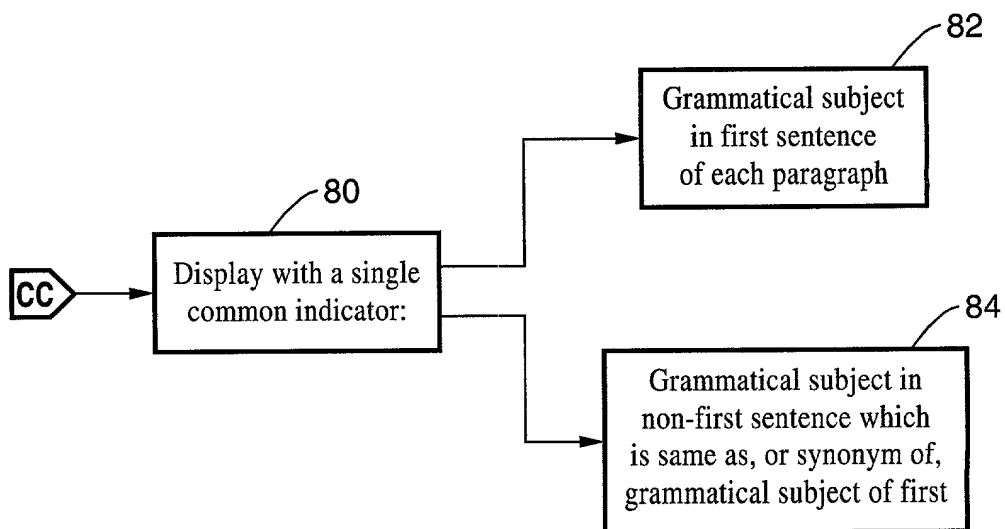


FIG. 2D

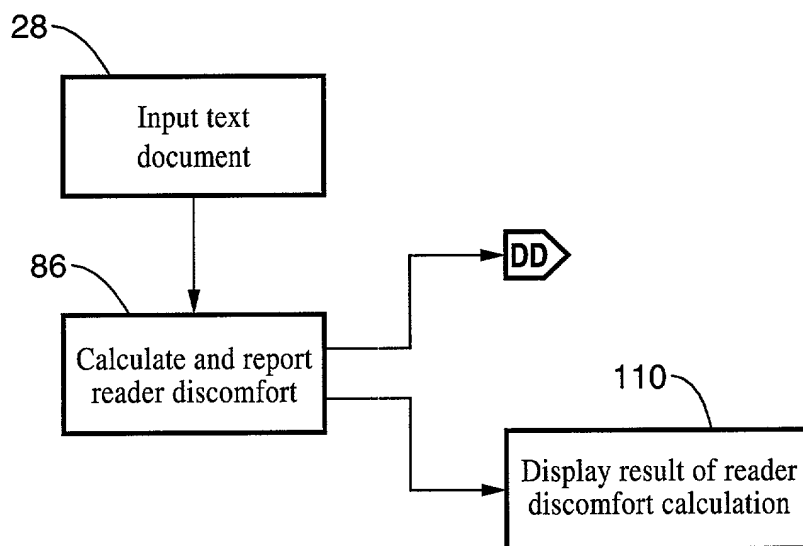


FIG. 3A

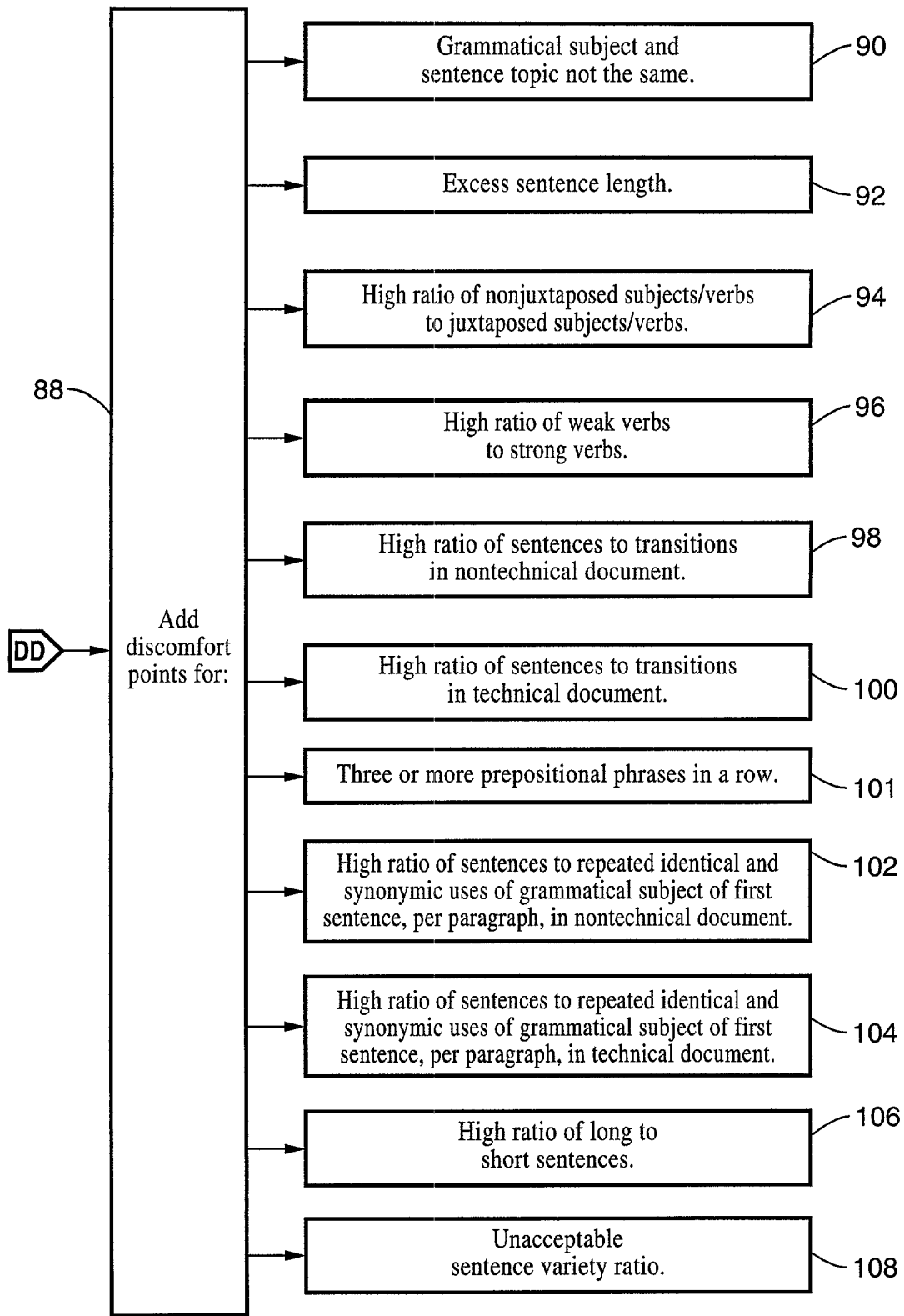


FIG. 3B

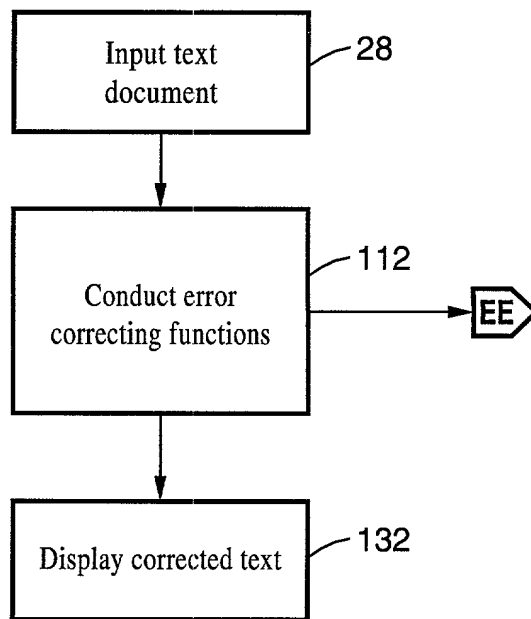


FIG. 4A

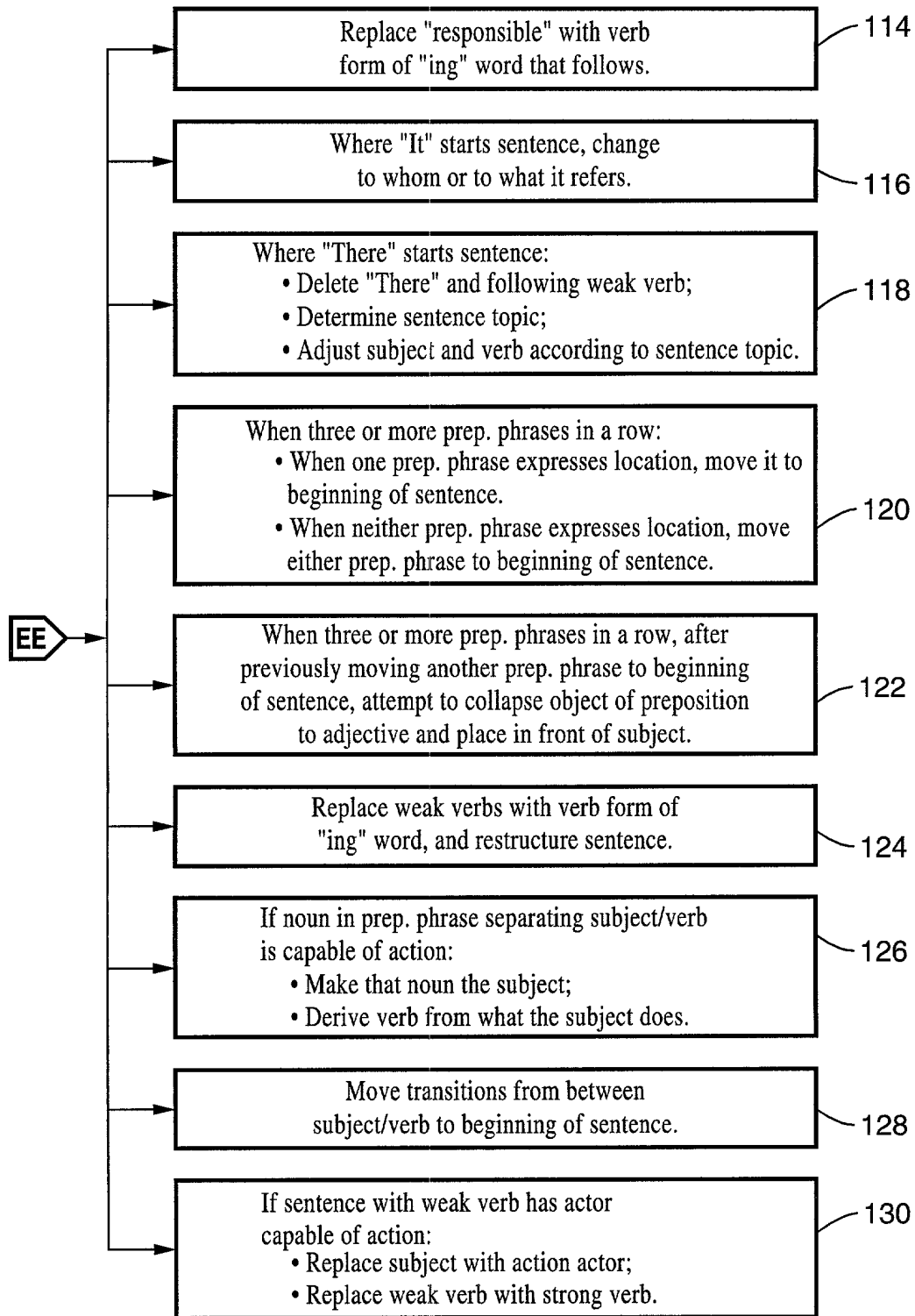


FIG. 4B

Practitioner's Docket No. 3179.01A**PATENT****COMBINED DECLARATION AND POWER OF ATTORNEY**(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

- ☒ original.
- ☐ design.
- ☐ supplemental.

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

- ☐ national stage of PCT.

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

NOTE: See 37 C.F.R. § 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.

- ☐ divisional.
- ☐ continuation.

NOTE: Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. § 1.53(b) (application filing requirements — nonprovisional application).

- ☐ continuation-in-part (C-I-P).

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTIONSTYLE-CHECKING METHOD AND APPARATUS FOR BUSINESS WRITING

SPECIFICATION IDENTIFICATION

the specification of which:

(complete (a), (b), or (c))

(a) ☒ is attached hereto.

NOTE: "The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

"(2) name of inventor(s), and attorney docket number which was on the specification as filed; or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) ☐ was filed on _____, as ☐ Serial No. 0 / _____
or ☐ _____
and was amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

NOTE: "The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and application number (consisting of the series code and the serial number; e.g., 08/123,456);

"(2) name of inventor(s), serial number and filing date;

"(3) name of inventor(s) and attorney docket number which was on the specification as filed;

"(4) name of inventor(s), title which was on the specification as filed and filing date;

"(5) name of inventor(s), title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

"(6) name of inventor(s), title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number; e.g., 08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration."

Notice of July 13, 1995 (1177 O.G. 60), M.P.E.P. § 601.01(a), 6th ed., rev. 3.

(c) ☐ was described and claimed in PCT International Application No. _____, filed on _____ and as amended under PCT Article 19 on _____ (if any).

(Declaration and Power of Attorney [1-1]—page 2 of 7)

SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))

(complete the following where a supplemental declaration is being submitted)

- ☐ I hereby declare that the subject matter of the
- ☐ attached amendment
- ☐ amendment filed on _____

was part of my/our invention and was invented before the filing date of the original application, above-identified, for such invention.

ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56,

(also check the following items, if desired)

- ☒ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and
- ☒ in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 CFR 1.98.

PRIORITY CLAIM (35 U.S.C. §§ 119(a)-(d))

NOTE. "The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) must be filed in the case of an interference (§ 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) ☒ no such applications have been filed.
- (e) ☐ such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>

CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(34 U.S.C. § 119(e))

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER

FILING DATE

____ / _____
____ / _____
____ / _____

**CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S)
UNDER 35 U.S.C. 120**

- ☐ The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN PART (C-I-P) APPLICATION.

(Declaration and Power of Attorney [1-1]—page 4 of 7)

**ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

JOSEPH E. GERBER, 32,354

(check the following item, if applicable)

- ☒ I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.
- ☐ Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

☒ Address

Joseph E. Gerber
916/558-6118

Joseph E. Gerber
Weintraub Genshlea & Sproul
400 Capitol Mall, Eleventh Floor
Sacramento, California 95814

☒ Customer Number 20940

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other documents.

NOTE: Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 CFR § 1.63(a)(3).

NOTE: Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.63(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 62 Fed. Reg. 53,131, 53,142, October 10, 1997,

Full name of sole or first inventor

Linda B. Vanderwold
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)
Inventor's signature Linda B. Vanderwold
Date 12-1-99 Country of Citizenship USA
Residence Dixon, California
Post Office Address 9185 Currey Road
Dixon, California 95620

Full name of second joint inventor, if any

Donald L. Hallberg
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)
Inventor's signature Donald L. Hallberg
Date 12-1-99 Country of Citizenship USA
Residence Davis, California
Post Office Address 1408 Drexel Drive
Davis, California 95616

Full name of third joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)
Inventor's signature _____
Date _____ Country of Citizenship _____
Residence _____
Post Office Address _____

(Declaration and Power of Attorney [1-1]—page 6 of 7)

(check proper box(es) for any of the following added page(s)
that form a part of this declaration)

- ☐ **Signature** for fourth and subsequent joint inventors. *Number of pages added* _____

* * *

- ☐ **Signature** by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* _____

* * *

- ☐ **Signature** for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. *Number of pages added* _____

* * *

- ☐ Added page for **signature** by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 CFR 1.47)

* * *

- ☐ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

☐ Number of pages added _____

* * *

- ☐ Authorization of practitioner(s) to accept and follow instructions from representative.

* * *

(if no further pages form a part of this Declaration,
then end this Declaration with this page and check the following item)

- ☒ This declaration ends with this page.